

REMARKS

In response to the Office Action mailed March 30, 2005, Applicants respectfully request reconsideration of the Application in view of the foregoing Amendments and the following Remarks. The claims as now presented are believed to be in allowable condition.

Claims 1 and 10 have been amended. Claims 1-18 remain in this application, of which claims 1 and 10 are independent claims.

Rejection of Claims 1, 2, 6-11, and 13-18 under 35 U.S.C. §102(e)

Claims 1, 2, 6-11, and 13-18 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Application No. 2003/0214853 to Hosono et al. (hereafter referred to as "Hosono"). Applicants respectfully traverse this rejection.

Claims 1 and 10 recite first and second passes of program verify and programming steps.

The first pass of program verify and programming steps are performed until each flash memory cell of the group attains a threshold voltage that is at least X% of a program verify level *but less than* the program verify level *after the first pass is completed*. In addition, *after the first pass is completed*, a second pass of program verify and programming steps are performed until each flash memory cell of the group attains substantially the program verify level.

The Examiner cites the program verify control function in the Abstract of Hosono for the first pass, and cites the erratic program verify control function in the Abstract of Hosono for the second pass.

However, note that the program verify control function in Hosono is just an ordinary programming process with program verify for the flash cells to attain 100% of the program verify level before the erratic program verify control function, as stated at page 2, paragraph [0019] of Hosono:

In regard to erratic programs, the above-identified Japanese document suggests that it may be performed after the ordinary program operation is ended.

The purpose of the erratic program verify process is for finding an erroneously programmed cell after the flash memory cells have been ordinarily programmed as stated at page 4, paragraph [0052] of Hosono:

....in which an erratic program verify process is included for finding an erroneously programmed cell.

Furthermore, page 5, paragraph [0059] of Hosono states:

....Thus, even through repeated execution of program and verify operations, the resultant program-state threshold voltage distribution width is finally controlled to stay at ΔV_{pgm+a} . Here “+a” is the width of a threshold voltage distribution due to noise components in the cell array.

In addition, please refer to the flow-chart of Figs. 6 and 7 of Hosono, which clearly show the erratic program verify step S7 after the flash cells fully pass ordinary program verify (steps S3, S4, and S5 in Hosono during the program verify control function) with the flash cells attaining 100% of the program verify level after the program verify control function (i.e., after steps S3, S4, and S5 in Hosono).

Thus, in Hosono, the flash cells do not attain a threshold voltage that is X% of a program verify level **but less than** the program verify level after the first pass is completed (i.e., after steps S3, S4, and S5 in Hosono). Rather after steps S3, S4, and S5 in Hosono, flash cells attain the full program verify level after the program verify control function (i.e., after steps S3, S4, and S5 in Hosono).

Thereafter, the erratic program verify step S7 of Hosono is performed to find any flash cells that are erroneously programmed but that actually should be erased instead.

Anticipation of a claimed invention requires the presence in a single prior art document

of *each and every* element of the properly construed claim. The Federal Circuit has set out the following requirements for anticipation pursuant to 35 U.S.C. §102:

...that a patent claim is anticipated under 35 U.S.C. §102 “must demonstrate, among other things, identity of invention.”...[O]ne who seeks such a finding must show that each element of the claim in issue is found, either expressly or under principles of inherency, in a single prior art reference, or that the claimed invention was previously known or embodied in a single prior art device or practice.

Minnesota Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc., 976 F.2d 1559, 1565 (Fed. Cir. 1992).

Because Hosono does not disclose, teach, or suggest all of the limitations of claims 1 and 10, the rejection of claims 1 and 10 under 35 U.S.C. §102(e) in view of Hosono should be withdrawn.

If the Examiner disagrees that Hosono does not disclose, teach, or suggest all of the limitations of claims 1 and 10, the Examiner is respectfully requested to point out *exactly where*, including *specific column(s), line number(s), and figure element(s)* in Hosono, such a disclosure or suggestion may be found for each flash cell attaining a threshold voltage that is just X% of a program verify level and *less than* the program verify level after the program verify control function is completed (i.e., after steps S3, S4, and S5 in Hosono).

In addition, Figs. 7 and 8 of Hosono show the “over-program verify” step (S9 in Fig. 7 and S20 in Fig. 8), that determines which of the programmed flash cells has a threshold voltage substantially above the full program verify level after the program verify control function is completed (i.e., after steps S3, S4, and S5 in Fig. 7 and after steps S14, S15, and S16 in Fig. 8). Thus, such teaching of Hosono further indicates that after the program verify control function is completed, the flash cells attain a threshold voltage that is even higher than the desired full program verify level.

By touting the use of the over-program verify step, the disclosure of Hosono even *teaches away* from the limitation of each flash memory cell attaining a threshold voltage that is just X% of a program verify level and *less than* the program verify level after the program verify control function is completed.

Section 2141.02 of the MPEP states “prior art must be considered *in its entirety*, including disclosures that teach away from the claims.” The Examiner is respectfully requested to consider the teachings from the the whole of Hosono in its entirety, in addition to just the Abstract.

Claims 2 and 6-9 which depend from and further limit claim 1, are allowable for at least the same reasons that claim 1 is allowable as stated above.

Claims 11 and 13-18 which depend from and further limit claim 10, are allowable for at least the same reasons that claim 10 is allowable as stated above.

Allowable Subject Matter

Claims 3-5 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 3-5 which depend from and further limit claim 1, are allowable for at least the same reasons that claim 1 is allowable as stated above.

Claim 12 which depends from and further limits claim 10, is allowable for at least the same reasons that claim 10 is allowable as stated above.

Conclusions

In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. Please feel free to contact the undersigned should any questions arise with respect to this case that may be addressed by telephone.

Respectfully submitted,
for the Applicant(s)

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CERTIFICATE OF MAILING

The undersigned hereby certifies that the foregoing AMENDMENT AND RESPONSE is being deposited in the United States Postal Service, as first class mail, postage prepaid, in an envelope addressed to Commissioner for Patents, Box AF, P.O. Box 1450, Alexandria, VA 22313-1450, on this 21st day of June, 2005.

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